What is claimed is:

1. A method of transmitting data over a communications network comprising:-
   (a) dividing the data into a plurality of distinct data streams,
   (b) modulating each data stream into a single transmission signal at different respective modulation levels, and
   (c) transmitting the signal.

2. A method according to claim 1, including applying forward error correction to at least one of the data streams.

3. A method according to claim 1, wherein the modulation used is quadrature amplitude modulation.

4. A method according to claim 3, wherein each data steam is modulated using QPSK and wherein the modulated signals are combined at successively decreasing power levels to produce a composite signal for transmission over the network.

5. A method according to claim 4, wherein each successive QPSK modulation level is modulated at half the amplitude of the preceding modulation level.

6. A method according to claim 1, including waiting for an acknowledgement of received data for each data stream and re-transmitting data which is not acknowledged within a predetermined time period.

7. A method according to claim 6, wherein the data is re-transmitted in a data stream which is modulated at the same level as the original transmission.

8. A method according to claim 6, wherein the data is re-transmitted in a data stream which is modulated at a higher modulation level than the original transmission.

9. A method of receiving data over a communications network, comprising:-

(a) receiving a signal over the network which carries a plurality of data streams modulated at different respective modulation levels, and

(b) demodulating a first data stream from the signal, and

(c) attempting to demodulate at least one further data stream from the signal.

10. A method according to claim 9, wherein the modulation of the radio signal is quadrature amplitude modulation.

11. A method according to claim 10, comprising demodulating the radio signal as a QPSK signal at a first assumed amplitude level, normalising the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalising steps for progressively smaller assumed amplitude levels to demodulate each said further data stream.

12. A method according to claim 9, further comprising sending an acknowledgement for each data portion of a data stream which is successfully received and demodulated.

13. A data-bearing signal comprising a plurality of QPSK modulated data streams combined into a single QAM transmission, the combination being made by combining each QPSK signal at progressively smaller amplitude levels.

14. A signal according to claim 13, wherein each additional QPSK signal is combined at an amplitude of half the preceding QPSK signal.

15. A modulator for a transmission signal comprising:-

(a) a plurality of data inputs arranged to receive respective data streams,

(b) a modulator for applying modulation to the signal responsive to data received at each of the data inputs,

the modulator being arranged to apply modulation at different respective amplitude levels for data received at respective data inputs.

16. A modulator according to claim 15, wherein the modulator is arranged to apply QPSK modulation.

17. A modulator according to claim 15, wherein the modulator is arranged to apply modulation at an amplitude level which is reduced by half for data received from each successive data input.

18. A transmitter having:-

(a) a plurality of data inputs arranged to receive respective data streams, and

(b) a modulator for applying modulation to a transmission signal responsive to data received at each of the data inputs,

the modulator being arranged to apply modulation at different respective amplitude levels for data received at respective data inputs.

19. A transmitter according to claim 18, arranged to receive acknowledgements of successfully received data and to re-transmit data which has not been acknowledged in a predetermined time period.

20. A transmitter according to claim 19, further arranged to re-transmit data using a different modulation level to that used for the original transmission.

21. A demodulator arranged to demodulate a signal having a plurality of data streams modulated at different respective modulation levels.

22. A demodulator according to claim 21, arranged to demodulate an QAM signal.

23. A demodulator according to claim 22, arranged to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalise the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalising steps for progressively smaller assumed amplitude levels to demodulate each said further data stream.

24. A method of transmitting data over a communications network to a plurality of terminals comprising:-

(a) modulating a signal for transmission with a plurality of respective data streams,

(b) selecting the modulation amplitude for each data stream according to the desired destination of each respective data stream, and

(c) simultaneously transmitting the data streams,

whereby the data is simultaneously transmitted to selected terminals by virtue of their differing radio channel properties and distances from the transmitter.

25. A method of transmitting data over a communications network to a plurality of terminals comprising:-

(a) coding data at different code rates for plurality of respective data streams,

(b) modulating the coded data, and

(c) simultaneously transmitting the data streams,

whereby the data is simultaneously transmitted to selected terminals by virtue of their differing radio channel properties and distances from the transmitter.

26. A method according to claim 25, wherein the modulation amplitude for each data stream is selected according to the desired destination of each respective data stream.

27. A receiver including a demodulator arranged to demodulate a signal having a plurality of data streams modulated in a way which provides different susceptibility to noise.

28. A receiver according to claim 27, wherein the demodulator is arranged to demodulate a received signal modulated at different respective modulation levels for each data stream.

29. A computer program which when executed on a suitable receiver in a network causes the receiver to:-

(a) receive a signal over the network which carries a plurality of data streams modulated at different respective modulation levels, and

(b) demodulate a first data stream from the signal, and

(c) attempt to demodulate at least one further data stream from the signal.

30. A computer program which when executed on a suitable transmitter in a network causes the transmitter to:-

(a) divide incoming data into a plurality of distinct data streams,

(b) modulate each data stream into a single transmission signal at different respective modulation levels, and

(c) transmit the signal over the network.